Claims

1. (Previously presented) A method, comprising:

acquiring volumetric image data indicative of a moving organ during at least a sub-portion of a movement cycle of the moving organ;

acquiring a signal indicative of the movement cycle;

using a similarity measure to determine motion fields that describe motion of the moving organ during the movement cycle based on the image data and the signal, wherein the similarity measure is a difference measure;

determining where the motion is minimal based on the motion fields;

selecting a portion of the image data that corresponds to where the motion is determined to be minimal; and

reconstructing an image from the selected portion of the image data.

2. (Previously presented) The method of claim 1, wherein the volumetric image data corresponds to cardiac CT data and one of simultaneously measured electrocardiogram data and photoplethysmographic data.

3. (Previously presented) The method of claim 1, wherein the plurality of motion fields are indicative of motion between motion phases of the movement cycle.

4. (Previously presented) The method of claim 1, wherein the volumetric image data correspond to the coronary artery region and simultaneously measured electrocardiogram data.

5. (Previously presented) The method of claim 4, wherein the selection of the portion of the volumetric image data corresponds to a setting of a gating window; wherein, on a variation of the gating window, a new image is reconstructed in real-time; wherein the new image is displayed on a display such that a real-time optimization is provided.

6. (Previously presented) The method of claim 5, wherein the variation of the gating window is based on the first time points such that the gating window is automatically set to time points where there is minimal motion in the object such that the new image is automatically optimized.

7. (Previously presented) The method of claim 5, wherein the variation of the gating window is based on an input from a user such that a real-time interactive optimization of the image is provided.

8. (Previously presented) The method of claim 4, further comprising the steps of:

performing a sliding reconstruction of the volumetric data;

segmenting the coronary vessel tree from the volumetric data; wherein the determination of the plurality of motion fields is performed such that the plurality of motion fields describes motions of areas of the coronary vessel tree.

9. (Previously presented) An image processing device, comprising:

a memory for storing volumetric data, wherein the volumetric data include a plurality of projections corresponding to a plurality of time points; and

an image processor for reconstructing an image of an object from the volumetric data of the object, wherein the image processor is adapted to perform the following operation:

estimating a motion of the object;

determining a plurality of motion fields from volumetric image data and the estimated motion of the object;

determining first time points, based on the plurality of motion fields, where the motion of the object is minimal; and

selecting projections from the plurality of projections on the basis of the first time points; and

reconstructing the image from the projections selected from the plurality of projections.

10. (Previously presented) The image processing device of claim 9, wherein the image processing device is a CT system suitable for cardiac CT; wherein the volumetric data correspond to cardiac CT data and one of simultaneously measured electrocardiogram data and photoplethysmographic data.

11. (Previously presented) The image processing device of claim 9, wherein the image processing device is a multi-slice CT system; wherein the volumetric data correspond to a coronary artery region and simultaneously measured electrocardiogram data; wherein the selection of the projections from the plurality of projections corresponds to a setting of a gating window; wherein, on a variation of the gating window, a new image is reconstructed on the basis of an iterative reconstruction optimization in real-time; and wherein the new image is displayed on a display such that a real-time optimization is provided.

12. (Previously presented) A computer readable medium encoded with computer executable instructions, which, when executed by a computer, cause the computer to perform the following operation:

determining a plurality of motion fields from volumetric data corresponding to a scanned object;

determining first time points where the motion of the object is minimal on the basis of the motion fields; and

selecting projections from the plurality of projections on the basis of the first time points; and

reconstructing an image from the projections selected from the plurality of projections.

13. (Previously presented) The computer readable medium of claim 12, wherein the volumetric data correspond to cardiac CT data and simultaneously measured photoplethysmographic data.

14. (Previously presented) The computer readable medium of claim 12, wherein the volumetric data correspond to a coronary artery; wherein the selection of the projections from the

plurality of projections corresponds to a setting of a gating window; wherein, on a variation of the gating window, a new image is reconstructed on the basis of an iterative reconstruction optimization in real-time; and wherein the new image is displayed on a display such that a real-time optimization is provided.

15. (Previously presented) The computer readable medium of claim 12, wherein the plurality of motion fields describe inter-image motion.

16. (Previously presented) The computer readable medium of claim 12, wherein the act of determining the plurality of motion fields includes estimating a magnitude of the motion based on a difference measure.

17. (Previously presented) The computer readable medium of claim 12, wherein the act of determining the plurality of motion fields includes estimating a magnitude of the motion based on a similarity measure.

18. (Previously presented) The computer readable medium of claim 12, wherein the act of determining the first time points where the motion of the object is minimal includes comparing the motion fields to a threshold.

19. (Previously presented) The image processing device of claim 9, wherein the plurality of motion fields includes a magnitude of the motion based on a difference measure.

20. (Previously presented) The image processing device of claim 9, wherein the plurality of motion fields includes a magnitude of the motion based on a similarity measure.